

Initial observation on pressure ulcers and COVID-19

KEY WORDS

- » COVID-19
- » Pressure ulcers
- » Quality
- » Support surfaces

Since the beginning of 2020, the COVID-19 pandemic has been a challenge faced by the world and one that all health professionals are facing. The impact of COVID-19 on patients receiving and accepting healthcare services have changed in the past few months. One of the main issues identified in NHS hospitals were increase in the pressure ulcers and this paper is an initial glance at what was identified at an acute setting during the first wave of pandemic.

The World Health Organisation declared 2020 the 'International Year of the Nurse and the Midwife' in honour of the 200th anniversary of Florence Nightingale's birth, (Laskowski-Jones, 2020). No one could have foreseen the challenges that health professionals would face in 2020, as a result of the COVID-19 global pandemic. Health professionals had no option than to rise to the challenge and work beyond their limits to fight against such a deadly disease. They had to quickly learn new skills and further develop their knowledge base as staff were moved from their usual clinical area to one that cares for COVID-19 patients. Florence Nightingale said:

'The very first requirement in a hospital is that it should 'do the sick no harm' (Nightingale, 1863)

Never has this been more important than now, as we strive to prevent patients admitted to hospital with COVID-19 from developing pressure ulcers (PU).

As the Tissue Viability Lead for Kettering General Hospital NHS Trust (KGH), I closely monitor the trust wide PU data. It has been noted that during the COVID-19 pandemic there has been an increase in hospital developed PUs from a 0.46 to 0.96 per 1000 bed days for category II PUs even though there was an overall reduction in the number of patients per 1000 bed days either due to a decreased number of hospital admissions or shorter lengths of inpatient stays. Through discussions with tissue viability nurses throughout the East Midlands forum it was evident that they were also experiencing the same trend. This

confirmed that an increase in PUs was not just at KGH but everyone was facing similar issues. A closer review of the data using the PU validation process revealed that three quarters of patients that developed PUs in hospital were COVID-19 positive with the majority cared for in the Intensive Care Unit (ICU).

In discussion with the various specialist teams and the ITU team we identified five potential causes that may have contributed to the increase in pressure tissue damage in COVID-19 patients:

- Physiological changes related to COVID-19
- Increased use of medical devices needed to support treatment
- Poor nutrition due to the patient's condition or the health care environment
- Decreased mobility due to illness and how the patient needed to be positioned
- Workforce challenges.

Physiological changes

According to (Li and Ma, 2020), acute respiratory distress syndrome (ARDS) is observed/believed to be the main physiological problem of COVID-19, resulting in patients requiring high levels of oxygen administration and in the worst case scenario being mechanically ventilated. Hyper-inflammation and coagulation problems have also been reported (White et al, 2020; Willyard, 2020). Poor oxygen supply to tissues leads to ischaemia and can result in the development of PUs (Mishra and Bhattacharya, 2015). Other symptoms such as persistent diarrhoea have contributed to the development of moisture associated skin dermatitis resulting in sacral ulcers.

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According to Tang et al (2020) frequent bowel movements cause surrounding skin to become vulnerable and deteriorate into a PU due to frequent faecal contamination of the area. Even though the moisture would not cause PU the frequent cleaning of the area which causes friction pressure on the skin which in turn leading to the development of PUs. Some patients had faecal management system due to persistent diarrhoea and the already developed moisture lesion with combination of pressure from the tubings also contributed to PUs.

Medical devices

According to a study by Black et al (2010) 34.5% of all PUs developed in hospital are related to medical devices. For example critically unwell patients who are on life support are often not aware of the pressure applied by the equipment. As stated in the consensus document by Gefen and Ousey (2020):

'regardless of the setting there is high association between device-related pressure ulcers (DRPU) and respiratory devices which equates to 68% of all the device-related pressure ulcers'.

These includes nasal cannulas, oxygen masks, high flow oxygen devices, chest drains, tracheostomy tubings, endotracheal tubings, bi-level positive airway pressure (BiPAP) or continuous positive airway pressure masks (CPAP). Out of this 68%, 20% are linked to the (BiPAP) or (CPAP) (Gefen and Ousey, 2020). Many patients with COVID-19 are nursed prone with mechanical intubation or CPAP support using non invasive ventilator face masks. Normally these treatment methods are used for short periods of time but unfortunately for patients with COVID-19 they require ventilator support for longer periods of time. In addition anti-embolic stockings and nasogastric tubes were also used for prolonged periods. This resulted in an increase in leg PUs from the stockings and facial PUs from tube and mask usage. In summary there is a range of equipment and devices required for the treatment of COVID-19 which may have caused the increased risk of tissue damage.

Poor nutrition

Nutrition has an important role in wound healing and poor nutrition results in delayed wound healing

(Brown and Phillips, 2010). It was identified that the patients who were COVID-19 positive had dyspnoea and low oxygen saturation levels. When oxygen therapy is prescribed via masks it impairs a patient's ability to eat and drink. According to Stechmiller (2010), optimal hydration is important for oxygenation of tissues which is also necessary for the prevention and management of wounds. Even patients not on high flow oxygen therapy were still breathless and lethargic so often declined meals. Patients who were critically unwell with COVID-19 were prone and hence not suitable to feed via nasogastric tubes or percutaneous endoscopic gastrostomy (PEG) this led to patient weight loss which increased their risk of developing PUs.

Decreased mobility

Patients who were hospitalised with COVID-19 needed full support from staff with their activities of daily living. The inability of patients to meet their own needs was exacerbated if they had other comorbidities such as asthma, chronic obstructive pulmonary disease (COPD), diabetes and obesity. This resulted in patients being confined to bed and immobile for longer periods which increased their risk of developing PUs. Out of all the PUs developed at KGH 40% was device related and 60% were non-device related PUs during the first quarter of this year. The patients in ICU were prone for 16 hours before being turned back into a supine position and needed 5–6 staff for each patient which again increased the risk of developing a PU. Repositioning a ventilated prone patient on inotropes and continuous veno-venous hemofiltration (CVVH) is not easy and doing so requires a number of staff. It also required an anaesthetist and experienced ICU staff who were not always available as a high number of patients had overwhelmed the system (Paul et al, 2020). This was combined with changing guidance on the clinical management of patients which often required them to be left in position for prolonged periods.

Staff absence due to COVID-19

COVID-19 posed a national staffing challenge. A significant number of staff had to 'shield' due to their own or family member's health issues. Also many staff were infected with COVID-19 including the KGH TVN Team. This resulted in staff being

redeployed to areas where they did not usually work and had to work outside their normal practice areas, this increased the level of anxiety among them as well as the staff supervising (National Health Service, 2020). In addition many had to quickly refresh their knowledge in order to care for patients who were very susceptible to PUs. Even though health professionals were experiencing high anxiety levels due to various factors such as uncertainty, dealing with new medical conditions and redeployment it was internationally noticed and commented on how remarkably well the health professionals adapted to this challenge as well as how well patients were cared for during the COVID-19 pandemic.

CONCLUSION

Within this short period of time we have learnt a lot about the risk factors relating to COVID-19. However, as we learn more about the disease there will inevitably be more that can be done to prevent and treat PIUs. Nationally as TVNs we need to share our experiences of caring for patients with COVID-19 and suggest areas for future research and development.

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